Complete Summary

GUIDELINE TITLE

Gestational diabetes practice guidelines.

BIBLIOGRAPHIC SOURCE(S)

International Diabetes Center. Gestational diabetes practice guidelines. Minneapolis (MN): International Diabetes Center; 2003. 2 p.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Gestational diabetes mellitus

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Screening
Treatment

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine
Obstetrics and Gynecology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dietitians
Managed Care Organizations
Nurses
Pharmacists
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Social Workers

GUIDELINE OBJECTIVE(S)

Staged Diabetes Management is a systematic approach to detecting and treating diabetes using practice guidelines and clinical pathways that reflects the changing responsibilities of the primary care provider and the primary care team. The purpose of Staged Diabetes Management is to:

- Provide a systematic, data-based approach for clinical decision making in the treatment of diabetes and its complications
- Provide a consistent set of scientifically based practice guidelines that can be adapted by a community according to its resources
- Identify appropriate criteria for altering therapies during three treatment phases: Start, Adjust, and Maintain
- Provide a common Master DecisionPath for the type of diabetes that both patients and providers can use to understand treatment options, to enhance communication, and to optimize therapies
- Facilitate the detection and treatment of diabetes and its complications by primary care providers, in consultation with specialists (comanagement)

TARGET POPULATION

Pregnant women

INTERVENTIONS AND PRACTICES CONSIDERED

1. Screening and diagnosis
    - Screening for risk factors (family and personal history)
    - One-hour plasma glucose, oral glucose tolerance test, fasting plasma glucose
    - Assessment of signs and symptoms
    - Urinary ketones
2. Staged treatment
    - Medical nutrition therapy
    - Exercise interventions
    - Glyburide Stage
    - Staged insulin therapy (Insulin Stages 3,4)
        - Lispro or Aspart
        - Human regular insulin
        - Neutral protamine Hagedorn (NPH) insulin
3. Targeting and monitoring blood glucose control
    - Self-monitored blood glucose (metered with memory and log book)

    - Hemoglobin A_{1c} or total glycosylated hemoglobin
    - Urinary ketones
4. Fetal monitoring, including kick counts and non-stress tests
5. Follow-up (includes short-term and long-term assessments)
    - Blood glucose
    - Weight, body mass index
    - Blood pressure
    - Medical nutrition therapy, exercise
    - Diabetes evaluations
6. Patient education (diabetes, nutrition, exercise)
7. Psychological and social assessment

MAJOR OUTCOMES CONSIDERED

Intermediate outcome measures of blood glucose control

- Hemoglobin A_{1c}
- Blood glucose, by self-monitored blood glucose and casual (random) and fasting plasma glucose
- Urinary ketones

Neonatal outcome measures

Large-for-gestational age infant

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus
Subjective Review

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

A team of endocrinologists, family physicians, clinical nurse specialists, and dieticians joined together in 1988 to identify the therapeutic principles that lie at the core of diabetes management. Specialists joined the team as needed, including a perinatologist, an epidemiologist, and a psychologist, among others. The team investigated current approaches to the treatment of type 1 diabetes, type 2 diabetes, and diabetes in pregnancy. At biweekly conferences over a period of 5 months, each step in diagnosing and treating each type of diabetes was carefully delineated.

Key decisions points were placed on flow charts termed "DecisionPaths." These DecisionPaths contained the following:

- Treatment modalities
- Criteria for initiating treatment
- Criteria for changing treatment
- Key clinical decision points
- Information about establishing, monitoring, and evaluating therapeutic goals
- Recommended follow-up

Changes in the original design of Staged Diabetes Management since its initiation in 1988 have been made to reflect additional patient data collected during clinical trials and implementation studies.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Trial Implementation Period

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Since its initiation in 1988, Staged Diabetes Management has undergone clinical trials and implementation studies in more than 200 sites worldwide. The results have led to changes in the original design of Staged Diabetes Management and are reflected in the guideline text. Nevertheless, the basic principles upon which Staged Diabetes Management is founded remain intact.

To continue to refine this systematic approach to clinical decision-making, the records of randomly selected patients seen in a diabetes specialty center are periodically evaluated. These are supplemented by data on more than five thousand individuals with diabetes treated in primary care centers in accordance with Staged Diabetes Management protocols.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The following is an outline of practice guidelines for management of gestational diabetes mellitus. A detailed management plan and accompanying DecisionPaths can be found in the original guidelines:

Screening

Screen between the 24th and 28th gestational weeks; with any risk factor, consider screening at first prenatal visit.

Screen with 50-gram glucose challenge test: 1-hour plasma glucose $\geq$140 mg/dL positive; $\geq$120 mg/dL suspected.

Risk Factors

- Body mass index >25 kg/m^2 (especially waist-to-hip ratio >1)
- Family history of type 2 diabetes (especially first-degree relatives)
- Age older than 25 years
- Multiparity
- Previous gestational diabetes: Macrosomic or large-for-gestational age infant (e.g., $\geq$9 lbs. or 4000 grams)
- Previous impaired fasting glucose with fasting plasma glucose 110 to 125 mg/dL
- Previous impaired glucose tolerance with oral glucose tolerance test 2-hour glucose value 140 to 199 mg/dL
- American Indian or Alaska Native, African American, Asian, Hispanic, Pacific Islander

Diagnosis

Plasma Glucose

100 gram oral glucose tolerance test after 8 to 10 hours overnight fast:

Fasting ≥95 mg/dL, 1 hour ≥180 mg/dL, 2 hour ≥155 mg/dL, 3 hour ≥140 mg/dL; two abnormal values required for diagnosis; if one abnormal, consider self-monitored blood glucose for 7 days; if average fasting blood glucose ≥95 mg/dL or average 2-hour post-meal ≥120 mg/dL, re-evaluate for gestational diabetes mellitus. See "Gestational: Master DecisionPath" in the full-text guideline.

Symptoms

Usually none. Rarely, increased urination, thirst, and appetite; nocturia; weight loss

Urine Ketones

Usually negative; positive can indicate starvation ketosis

Treatment Options

Medical nutrition therapy; Glyburide Stage; insulin Stages 3, 4

Targets

Self-Monitored Blood Glucose

- All values within target range
- Pre-meal and bedtime: 60 to 95 mg/dL
- Post-meal: <120 mg/dL 2 hours after start of meal; <140 mg/dL 1 hour after start of meal

Hemoglobin A_{1c}(HbA_{1c})

May be used to evaluate prior hyperglycemia, but is not used in gestational diabetes management; should be within normal range

Urine Ketones (Fasting)

Negative

Monitoring

Self-Monitored Blood Glucose

6 to 7 times/day; before and 1 to 2 hours after start of meals, and at bedtime; 4 times/day minimum; fasting and 1 to 2 hours after start of meals

Method

Meter with memory and log book

Urine Ketones (Fasting)

Every morning until negative for 7 days, then every other morning

Follow-Up

Pre-natal

Phone 1 to 2 times a week to review self-monitored blood glucose data; office visit every 2 weeks up to 36 weeks, then weekly; self-monitored blood glucose data (download and check meter); frequency of hypoglycemia; weight or body mass index; medications; blood pressure; medical nutrition therapy; exercise

Fetal Monitoring

Kick counts at 28 weeks; non-stress test at 34 weeks and until end of pregnancy

After Delivery

In hospital: Check fasting blood glucose and 2 hours after breakfast each day.

After discharge: Check fasting blood glucose and blood glucose 2 hours after breakfast 1 day/week until first postpartum visit. If fasting blood glucose >120 mg/dL, and/or post-prandial blood glucose >160 mg/dL, evaluate for diabetes immediately.

6 weeks: Nutrition education if needed

3 to 6 months: Evaluate for diabetes and yearly thereafter

CLINICAL ALGORITHM(S)

Algorithms are provided for management of gestational diabetes in the form of a Master DecisionPath as well as separate detailed DecisionPaths for:

- Screening and Diagnosis of Gestational Diabetes
- Gestational Diabetes Education
- Gestational Diabetes Education Topics
- Gestational Diabetes Medical Nutrition Therapy/Start
- Gestational Diabetes Medical Nutrition Therapy/Adjust
- Gestational Diabetes Insulin Stage 2
- Gestational Diabetes Insulin Stage 3A/Start
- Self-Monitoring of Blood Glucose Adherence for Gestational Diabetes
- Psychological and Social Assessment

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation. However, throughout the guideline document, the evidence used as the basis for the recommendations is discussed.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Early detection of gestational diabetes mellitus can reduce the immediate risk of maternal, perinatal, and neonatal complications.
- Control of blood glucose levels during pregnancy can prevent such complications as macrosomia or large-for-gestational age infants, neonatal hypoglycemia, hyperbilirubinemia, polycythemia, shoulder dystocia, and traumatic birth injury.

Subgroups Most Likely to Benefit

Certain ethnic groups (American Indians, Alaska Native, African Americans, Asians, Native Hawaiians and other Pacific Islanders, and Hispanics) are considered at highest risk for gestational diabetes mellitus with prevalence rates of 8 to 14%.

POTENTIAL HARMS

Insulin therapy can cause mild, moderate, or severe hypoglycemia, including unconsciousness and seizures.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These Guidelines should not be interpreted as including all available and proper methods of diabetes care. The decision regarding any specific treatment modality should be made by the health care professional with consideration of the particular circumstances presented by the patient and the needs and resources particular to the community or institution.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

To fully implement Staged Diabetes Management requires participation in the Staged Diabetes Management process. This entails orientation to Staged Diabetes Management principles as well as assessing current practices, customizing elements of Staged Diabetes Management for the community and identifying possible obstacles to implementation and follow-up.

Commitment to improving diabetes care is crucial to the success of Staged Diabetes Management in any community, and the key is building consensus. The goal of Staged Diabetes Management is to ensure consistent, high-quality diabetes care. To do this, all providers in the community need to become acquainted with and follow the same guidelines. A process based on consensus building is recommended in order to optimize the adoption of Staged Diabetes Management.

Starting and staying with successful Staged Diabetes Management requires six steps:

- Community diabetes care needs assessment
- Group formation
- Orientation to Staged Diabetes Management
- Customization of Staged Diabetes Management
- Implementation of Staged Diabetes Management
- Evaluation of Staged Diabetes Management

Note: A detailed implementation plan can be found in the original guidelines.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

International Diabetes Center. Gestational diabetes practice guidelines. Minneapolis (MN): International Diabetes Center; 2003. 2 p.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 (revised 2003)

GUIDELINE DEVELOPER(S)

International Diabetes Center - Private Nonprofit Organization

GUIDELINE DEVELOPER COMMENT

The International Diabetes Center is part of the Institute for Research and Education HealthSystem Minnesota. HealthSystem Minnesota, an integrated care system, also includes Methodist Hospital, Park Nicollet Clinic, and The Foundation.

The International Diabetes Center is a World Health Organization (WHO) Collaborating Center for Diabetes Education, Translation and Computer Technology.

SOURCE(S) OF FUNDING

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GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Staged diabetes management: a systematic approach. Minneapolis (MN): Matrex, International Diabetes Center; 2000. Gestational diabetes practice guidelines. p. 173-205.

GUIDELINE AVAILABILITY

Print copies: Available for purchase from the International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; (888) 8250-6315 (U.S. only); Web site: www.idcdiabetes.org.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on May 21, 2001. This summary was updated by ECRI on February 18, 2004. The information was verified by the guideline developer on March 11, 2004.

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